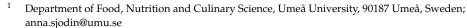




Reply

## Reply to Ravnskov, U. Is High Cholesterol Deleterious? An Alternative Point of View. Comment on "Burén et al. A Ketogenic Low-Carbohydrate High-Fat Diet Increases LDL Cholesterol in Healthy, Young, Normal-Weight Women: A Randomized Controlled Feeding Trial. *Nutrients* 2021, 13, 814"

Jonas Burén <sup>1,2,\*</sup>, Madelene Ericsson <sup>3,4</sup>, Nágila Raquel Teixeira Damasceno <sup>5</sup> and Anna Sjödin <sup>1</sup>



- Department of Public Health and Clinical Medicine, Medicine, Umeå University, 90187 Umeå, Sweden
- Department of Medical Biosciences, Physiological Chemistry, Umeå University, 90187 Umeå, Sweden; madelene.ericsson@umu.se
- <sup>4</sup> Umeå Centre for Molecular Medicine, Umeå University, 90187 Umeå, Sweden
- Department of Nutrition, School of Public Health, University of Sao Paulo, Sao Paulo 05508-060, Brazil; nagila@usp.br
- \* Correspondence: jonas.buren@umu.se; Tel.: +46-90-7866560

Citation: Burén, J.; Ericsson, M.;
Damasceno, N.R.T.; Sjödin, A. Reply
to Ravnskov, U. Is High Cholesterol
Deleterious? An Alternative Point of
View. Comment on "Burén et al. A
Ketogenic Low-Carbohydrate
High-Fat Diet Increases LDL
Cholesterol in Healthy, Young,
Normal-Weight Women: A
Randomized Controlled Feeding Trial.
Nutrients 2021, 13, 814". Nutrients
2021, 13, 2127. https://doi.org/

updates

Academic Editor: Maria Luz Fernandez

10.3390/nu13072127

Received: 10 June 2021 Accepted: 16 June 2021 Published: 22 June 2021

**Publisher's Note:** MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2021 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

We thank Ravnskov [1] for his interest in our recent publication [2]. In our study, low-density lipoprotein cholesterol (LDL-C) and Apolipoprotein B-100 (ApoB) almost doubled in young, healthy women when they followed the ketogenic low-carbohydrate high-fat (LCHF) diet. According to the European Society of Cardiology (ESC) and the European Atherosclerosis Society (EAS) Guidelines for the management of dyslipidaemias [3] " . . . there is no longer an 'LDL-C hypothesis', but established facts that increased LDL-C values are causally related to atherosclerotic cardiovascular disease, and that lowering LDL particles and other ApoB-containing lipoproteins as much as possible reduces cardiovascular events." Therefore, we think it is reasonable to conclude that the alterations in blood lipids reported in our study should be a cause for concern in young women following this kind of LCHF diet.

**Author Contributions:** Writing—original draft preparation, J.B., M.E., N.R.T.D. and A.S. All authors have read and agreed to the published version of the manuscript.

**Funding:** This work was supported by P.Håkansson's Foundation, Eslöv, Sweden, and by Magnus Bergvall's Foundation, grant number 2014-00411, Sweden. The authors have not received any funding or benefits from commercial organizations.

Conflicts of Interest: The authors declare no conflict of interest.

## References

- I. Ravnskov, U. Is High Cholesterol Deleterious? An Alternative Point of View. Comment on Burén et al. A Ketogenic Low-Carbohydrate High-Fat Diet Increases LDL Cholesterol in Healthy, Young, Normal-Weight Women: A Randomized Controlled Feeding Trial. *Nutrients* 2021, 13, 814. *Nutrients* 2021, 13, 2119. [CrossRef]
- Burén, J.; Ericsson, M.; Damasceno, N.R.T.; Sjödin, A. A ketogenic low-carbohydrate highfat diet increases LDL cholesterol in healthy, young, normal-weight women: A randomized controlled feeding trial. *Nutrients* **2021**, *13*, 814. [CrossRef] [PubMed]
- Mach, F.; Baigent, C.; Catapano, A.L.; Koskinas, K.C.; Casula, M.; Badimon, L.; Chapman, M.J.; De Backer, G.G.; Delgado, V.; Ference, B.A.; et al. 2019 ESC/EAS Guidelines for the management of dyslipidaemias: Lipid modification to reduce cardiovascular risk. *Eur. Heart J.* 2020, 41, 111–188. [CrossRef] [PubMed]